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# Collaborative Research: CNS Core: Small: Secure and Efficient Mobile Edge Computing in Wireless Heterogeneous Networks

Rose Qingyang Hu

*Utah State University*, rose.hu@usu.edu

## Data Management Plan

### Importance of data management in this project

This project will create a novel computation-efficient mobile edge computing framework for ultra-dense IoT networks. The proposed research is in a cross-disciplinary area that spans computing, communications, and networks. As such, management of data is critical for broad audience accessing the data generated from this project.

### Roles and responsibilities

The PIs and students at the two universities, Utah State University (USU) and University of Nebraska-Lincoln (UNL), will be in charge of executing the overall management plan. The two PIs will oversee the process at each university to ensure that the management plan is implemented properly. Each full-time student at individual universities will take the leading role in implementing the data management plan.

### Data to be managed

In this project, the data to be managed include:

(1) Communication network protocols, algorithms, and simulation programs

Communication network protocols, algorithms and simulation programs will be generated for the proposed computation-efficient mobile edge computing architecture. Some of the models and algorithms will be documented in publications, and codes stored using each university's computing capabilities. The codes will be shared upon request.

(2) Datasets collected in the project

A large dataset that includes various types of IoT services will be collected in this project. These datasets will be collected from various types of IoT services, e.g., smart city, smart home, etc, using multiple typical network devices, e.g., computer, mobile phone, smart TV, etc., as described in the project descriptions. All these datasets will be stored using the each university's computing capabilities. Some of the usage of these datasets in the development of new computation offloading and resource allocation schemes will be documented in publications. The datasets will be shared upon request.

(3) Data collected from simulations, analysis and experiments

All the data collected from simulations and analysis as well as experiments will be stored using the each university's computing capabilities. Some of these data and analysis will be documented in publications.

(4) Curriculum modules, lecture notes, and course projects.

Education materials including related curriculum modules, lecture notes, and course projects are organized and made available on PIs' websites. Data there are maintained for 5 years and renewed thereafter.

(5) Research Results

Research results will be made available, classified and archived by prompt publication in international journals and presentations at peer-reviewed international conferences. The peer review process will ensure effective methods for maintaining the standards, quality, and content of the new results. Period of Data Retention for this published material is indefinite and permanent. Public release of all data is immediate.

**Data formats and dissemination**

Software codes will be the format of development environment and will have corresponding extensions. Data and datasets collected will be in the formats clearly documented. Newly developed course materials, notes, homework, and exams will be shared online in PDF, PowerPoint, or Word formats. Support documentation is in pdf and web format. PhD and Master Dissertations and thesis will be made available in university's electronic library.

**Period of data retention**

The above data will be made available as soon as they are available for public access, and be kept at least five years after conclusion of the award.

**Data storage and preservation of access**

Physical and cyber resources will be preserved during and after conclusion of the project. These physical resources and facilities include computational setups and published material under the PI's responsibility at USU and UNL. At Utah State University, a large dataset from the lab prototype testings will be required to validate the proposed algorithms and build the proposed modules in this project. The data will be stored in Digital Commons, the institutional repository of Uath State University, which is coordinated by the Merrill-Cazier Library and works to provide open access to scholarly works, research, reports, publications, and courses produced by Utah State University faculty, staff, students, and others. This data is also openly accessible on the World Wide Web. All project-related materials including publications and presentations will be made long-term accessible through the infrastructure.

**Policies for reuse and redistribution**

Reuse and redistribution will be allowed, in accordance to policies of the National Science Foundation, and with proper acknowledgement of the National Science Foundation.